

WHAT IS CLAIMED IS:

1. An optical fiber that has
  - a cable-cutoff wavelength of not longer than 1430 nanometers,
  - a mode-field diameter of not less than 7 micrometers and not
- 5 more than 9 micrometers at a wavelength of 1450 nanometers,
  - a transmission loss of not more than 0.285 dB/km at the wavelength of 1450 nanometers, and
  - a dispersion of not less than 0.1 ps/nm/km and not more than 4 ps/nm/km at the wavelength of 1450 nanometers.
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2. The optical fiber according to claim 1, wherein
  - the transmission loss is not more than 0.25 dB/km at the wavelength of 1450 nanometers.
- 15 3. The optical fiber according to claim 1, having a bending loss of not more than 5 dB/m, in a curvature diameter of 20 millimeters at bending, at a wavelength of 1550 nanometers.
4. The optical fiber according to claim 1 having a Raman gain efficiency of not less than 0.7 (1/W/km) at the wavelength of 1450 nanometers.
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5. The optical fiber according to claim 1, having a transmission loss of not more than 0.4 dB/km at a wavelength of 1390 nanometers after hydrogen ageing.
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6. The optical fiber according to claim 1, further comprising:  
a cladding;  
a first core at a center of the optical fiber;  
5 a second core surrounding the first core, and having a lower  
refractive index than the cladding; and  
a third core surrounding the second core, and having a lower  
refractive index than the first core and higher refractive index than the  
cladding.

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7. The optical fiber according to claim 1, subjected to deuterium  
ageing.

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8. A distributed Raman amplifier comprising:

an optical fiber that has

a cable-cutoff wavelength of not longer than 1430  
nanometers,  
a mode-field diameter of not less than 7 micrometers and  
not more than 9 micrometers at a wavelength of 1450 nanometers,  
20 a transmission loss of not more than 0.285 dB/km at the  
wavelength of 1450 nanometers, and  
a dispersion of not less than 0.1 ps/nm/km and not more  
than 4 ps/nm/km at the wavelength of 1450 nanometers.

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9. An optical communication system comprising:
  - a first optical fiber serving as a transmission line, wherein the optical fiber has
    - a cable-cutoff wavelength of not longer than 1430
    - 5 nanometers,
    - a mode-field diameter of not less than 7 micrometers and not more than 9 micrometers at a wavelength of 1450 nanometers,
    - a transmission loss of not more than 0.285 dB/km at the wavelength of 1450 nanometers, and
  - 10 a dispersion of not less than 0.1 ps/nm/km and not more than 4 ps/nm/km at the wavelength of 1450 nanometers; and
  - a distributed Raman amplifier that includes a second optical fiber serving as an amplifying medium, wherein the second optical fiber has the same characteristics as the first optical fiber.

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